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Question Paper Code: 45401

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Fifth Semester

Electronics and Communication Engineering

14UEC501 - DIGITAL COMMUNICATION

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

- Examples of digital communication are
 - ISDN
 - Modems
 - Classical telephony
 - All the above
- What is necessary for digital communication?
 - Precision timing
 - Frame synchronization
 - Character synchronization
 - All the above
- Idle channel noise is the coding noise measured at the receiver output with _____ transmitter input.
 - Infinite
 - Zero
 - one
 - two
- The process of converting continuous time signal to discrete time sequence is called as
 - Sampling
 - Quantisation
 - Encoding
 - Decoding
- Noise figure measures the
 - Power degradation
 - Noise degradation
 - SNR degradation
 - None of these

6. Bandwidth efficiency depends on the following factor
 - (a) Multilevel encoding
 - (b) spectral shaping
 - (c) both (a) and (b)
 - (d) none of these
7. Which modulation scheme is also called as on-off keying method?
 - (a) ASK
 - (b) FSK
 - (c) PSK
 - (d) GMSK
8. The coherent modulations techniques are
 - (a) PSK
 - (b) FSK
 - (c) ASK
 - (d) All the above
9. Pseudorandom signal _____ predicted.
 - (a) Can be
 - (b) Cannot be
 - (c) Both (a) and (b)
 - (d) None of these
10. The frequency hopping system uses _____ modulation scheme.
 - (a) FSK
 - (b) BPSK
 - (c) MFSK
 - (d) MPSK

PART - B (5 x 2 = 10 Marks)

11. Write short notes on channel classification. Give examples.
12. What are the two fold effects of quantizing process?
13. What are the measurements that can be obtained from eye pattern?
14. Define QAM and draw its constellation diagram.
15. What is meant by frequency hop and types of hopping systems?

PART - C (5 x 16 = 80 Marks)

16. (a) Explain the functional description of digital communication system in detail. (16)
- Or
- (b) Explain the mathematical models of communication channel. (16)
17. (a) Explain the process of converting the peak-to-peak range of input sample values into a finite set of decision levels or decision thresholds in detail. (16)
- Or
- (b) Explain in details about Quantization noise and signal to noise ratio. (16)

18. (a) What are optimum and matched filters? Find their transfer functions. Is it true that in matched filter error probability depends on signal energy and not on wave shape? Explain. (16)

Or

- (b) Explain in detail about maximum likelihood decoding rule. (16)

19. (a) Compare the performance of various coherent non-coherent digital detection systems. (16)

Or

- (b) Explain the operation of QPSK with neat diagram. (16)

20. (a) Summarize the transmitter and receiver of direct sequence spread coherent phase shift keying and obtain the derivation for processing gain. (16)

Or

- (a) (i) Briefly explain the generation of PN sequence with the properties of maximum length sequence. (8)
- (ii) Write notes on Anti jam characteristics. (8)
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